# From out of 'THE ASHES' Rises

# ZXir QLive Alive!

## The Timex/Sinclair NorthAmerican User Groups
### Newsletter

Volume 3   Number 3           Fall 1993

## MEMORY MAP

## T/SNUG Chairmen

Here is the list of 1993 T/SNUG Chairmen and how to contact them. We wish to support the following SIGS:- ZX-80/81/TS-1000, Z88, SPECTRUM/TS-2068/TC-2068 and QL. If you have any questions about any of these fine machines, contact the Chairman.

| POSITION | NAME | PHONE | PRIMARY FUNCTION |
|---|---|---|---|
| Chairman | Don Lambert (ISTUG) | 219 925-1372 | Chief Motivator |
| Vice-Chairman | D.G. Smith | 814 535-6996 | Tape & JLO Library |
| Vice-Chairman | Dave Bennett (CATS) | 717 774-7531 | Z-88 |
| Vice-Chairman | Ed Snow | 407 380-5124 | QL & ZX-81 Tape |
| Vice-Chairman | Rod Gowen (CCATS) | 503 655-7484 | RMG |
| Vice-Chairman | Rod Humphreys (VSUG) | 604 583-2819 | TS-2068 |
| Vice-Chairman | Bob Swoger (CATUG) | 708 837-7957 | BBS/LarKen |
| Treasurer | Abed Kahale (CATUG) | 708 885-4337 | Cash Tracker/Newsletter |

## ZXir QLive Alive!

is the newsletter of T/SNUG, the Timex/Sinclair NorthAmerican User Groups, providing news and software support to the T/S community in at least four newsletters per year.

It is our goal to build and maintain a Public Domain software library and develop a list of available software for all T/S computers showing the source.

T/SNUG wishes to have one chairman from every T/S user group who will take charge of sending us their group's newsletter contents and other correspondence for inclusion in the ZQA! Newsletter.

We encourage your group to copy this newsletter and distribute it at regular meetings to all your members. If you cannot copy this newsletter, perhaps we can provide a disk with the articles on it.

You can keep T/SNUG alive for an annual contribution of $10 made payable to Abed Kahale. Send check to:-

ABED KAHALE         (LarKen Library)
335 W NEWPORT RD
HOFFMAN ESTATES IL 60195-3106
Phone:- 708 885-4337
Back copies are available for 50¢ each postpaid

## ZXir QLive Alive!
## Articles Contributions

If you like to contribute an article to the Newsletter, upload a file to our BBS, call it TSNUG.ART. If you have an AD for the Newsletter, UPLOAD a file call it TSNUG.ADS. If you have news to post about your group, UPLOAD a file call it TSNUG.NWS

For help, contact the SYSOP by E-MAIL on the T/SNUG BBS, mail or phone:-

BOB SWOGER         (CATUG/LarKen)
613 PARKSIDE CIR
STREAMWOOD IL 60107-1647

It is preferred that you call:-
H 708 837-7957       W 708 576-8068

To contribute a hardcopy, tape or disk send your inputs to:-

DONALD LAMBERT
ZXir QLive ALive! Newsletter
1301 KIBLINGER PL
AUBURN IN 46706-3010
Phone 219 925-1372

For software libraries, write or call the following Vice-Chairmen. When writing please enclose a LSASE .

DAVE BENNETT                     (Z88)
329 WALTON ST  REAR
LEMOYNE PA 17045

ROD GOWEN                       (CCATS)
14784 QUAIL GROVE CIR
OREGON CITY OR 97045

ROD HUMPHREYS         (VSUG/2068)
10984 COLLINS PL
DELTA  B C  V4C 7E6 CANADA

D G SMITH    (2068 TAPE Library & JLO)
R 415 STONE ST
JOHNSTOWN PA  15906

ED SNOW             (ZX-81 TAPE & QL)
2136 CHURCHILL DOWNS CIR
ORLANDO FL 32825

## FROM THE CHAIRMAN'S DESK

The summer blahs have got me. And the frustration in waiting for Congress to act plus the problems of the flooding in other parts of the country. And while there is a lot of flooding the local area is too dry and the grass is browning out. But none of this is T/S related so on we go.

My adventures with trying to get a 3.5 drive to work properly was a hard fast trip down a side road. It turned out the drive was doing what it was supposed to do. The drive turned out to be a single sided 180K 3.5 drive which means it is a 40 track drive. I thought that all 3.5 drives were 80 track. But I did find a place that does not overcharge to work on drives and when I send in some other drives I will report on what happens. And if you have several drives of the same make, model, etc that do not work they will try to combine the drives to get one or more working drives. I will keep you posted.

Another adventure was with getting a Spectrum disk menu loader working. I was sent the disk in April and while I had the disk from the TTSUC library I could not get it to work with the T/S 2068 that had a Russell EPROM installed internally. I finally decided that either the EPROM or else the computer is not working properly since it is erratic with disk drives regardless of whether the Spectrum ROM is used. And with my eyesight being just less than what I feel is safe to use to solder (cataracts) I twisted Bob Swoger's arm to get him to put a Spectrum EPROM on a Larken Dock Board. So on the week that the Board arrived back in my computer room I again tried to fix the Spectrum disk.

But in the process I expected to have to install the MENU program on the disk so I had the HELP files from the MENU disk from the TTSUC Library disk #L-25 printed out and there was a paragraph:

"The Spectrum and TS 2068 menus also differ in a couple of ways. The Spectrum menu has a block of programming at line 9000 which will cause the Computer to switch to the Spectrum mode, if the AUTOSTART happens to commence from the TS 2068 mode. To make use of this feature you must save the menu to disk by a GOTO 9000."

However, line 9000 on the disk in question is:
9000 CLEAR 27550: RESTORE 9030

And line 9030 is:
9030                         DATA
205,102,0,62,3,211,244
,201,0,0,0,

And not being a programmer I have no idea what is going on.

But being a key puncher I gleaned the fact that if I turn on the computer while holding down the ENTER key all by itself then the AUTOSTART would start to LOAD and while doing so it would automatically kick the computer into the Spectrum mode.

In the real world I found that the disk had the AUTOSTART MENU load program corrupt. I got out the my WORKING copy of the disk and it too was corrupt. But the MASTER COPY was not. So now knowing that I had a working copy I copied the MASTER disk to my WORKING copy plus to the corrupted disk sent to me plus an extra one to send back just in case. And all copies did LOAD the MENU from holding down the ENTER key only and the Spectrum games did run afterwards.

I used COPYII.B1 on the D. U. S. Version 4.0 disk written by Kristian Bosivert to copy the disk. For those not familiar with the disk or the Larken 2068 disk initerface COPYII.B1 will copy a disk starting with track 0 (and include the original disk's title) and copy the disk 5 tracks at a time as it FORMATs the disk. And when done it will report if there is a bad disk in the destination drive. It is nice since you can do other things while the computer is copying.

So in a letter to Bob Swoger I mentioned how the computer could call up the MENU and POKE to Spectrum mode and he called to verify since he had not heard of that before. I am hoping that this will cause Bob to write an article explaining it.

I admit that I am one that does not understand a lot of the documentation that is provided with software and hardware. And Bob chides me about not reading the manuals. I contend that reading the manuals should not be necessary, that the proper instructions should be on the screen. However, I can also see that that can cause many extra hours of programming and in some cases the program would be far too big for the memory available.

There are a lot of good programs that I have not used simply because that I do not understand how to use them. Also, and this is not the programmer's fault the program is using a media (like spreadsheeting) that I do not understand either. But I am not drifting without learning. I do use programs that not long ago that I avoided since I did not understand them. Sometimes using an unrelated program will give me insight into another program. And I have noted that if you were to give 100

programmers software that they had to use that soon you would have many different versions that were customized for their particular requirements. For an example take a look at all the versions of TASWORD II and MSCRIPT.

But back to the Spectrum EPROM, I believe that it could be installed in a dock board, for those that do not have the Larken interface, and would operate just as well. But I have no positive knowledge of such. If anyone has knowledge of such an arrangement let me know how it is done so that I can pass the word on to others.

I had no idea when I started to get this newsletter together just what I would have to make up the issue. But in looking at the FORMAT newsletters that were given to me at the Fest I saw an article that I typed in that should interest anyone with printers that use nylon ribbons. At least it has more information that I thought available. 0/0

Don Lambert
Timex/Sinclair NorthAmerican
User Group

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The DAYTON COMPUTERFEST

by Donald S. Lambert

Instead of worrying about mentioning some names and forgetting to mention others I will just hit the highlights of the Dayton Computerfest as they come to mind.

The location of the T/S tables was the same as last year except that across from us was the DMA tables/booths and DMA was the one that sponsored the Computerfest. The DMA T/S representatives Gary Ganger and Tim Swenson manned a booth with

computers representing the history of computing.

Like last year, SMUG, manned by Bill Heberlein and Neil Schultz, had the first two tables starting from the left end of the row then Mechanical Afinity had several tables with Paul Holgren and Frank and Carol Davis and then the table for T/SNUG and ZXir QLive Alive! Frank and Carol Davis also represented UPDATE MAGAZINE.

While I arrived at the Red Roof Inn North at 3 PM (DAyton time) Friday I was not the earliest arrival. Hugh Howie had arrived the previous day. He came down I-75 and reported that it was nothing but construction all the way. I was on I-75 from the intersection with highway 30 and construction was the rule of the day. In fact I wondered if I was going to be able to exit at the proper exit for the Red Roof Inn since I was again in the area of a closed right lane. However, the exit ramp was open so I could use it. The next exit ramp was closed however.

And to make the wife happy I walk to the Cracker Barrel and bought a couple of jars of gourmet jam. And it did make her happy.

I ran into a fellow and learned that he was there to pass on his equipment to other fellow T/Sers since he was leaving the T/S computers for another. Charlie Reese came in from St. Louis, MO and stayed through Saturday night. I learned that he had a set of disk drives, two 720K drives, one a 3.5 and one a 5.25 in a case for sale. I was greatly interested since I was trying to find a working 720K 3.5 drive.

Quite a while later Paul Holgren arrived and was surprised that Frank and Carol Davis had not arrived yet since they should have been there. Turned out that Paul had passed them when they made a stop on I-70. Paul had his son John with him. Their younger boy could not come since he had a soccer tournament Saturday. So Paul and John represented their family.

Frank and Carol Davis arrived and we went out to eat at Bob Evan's in a group. After that Frank, Carol and Paul went over to set up for the show and on the way back the driver's window on Paul's van stuck all the way down. They could hear the electric motor running but no action. Paul had to tape a black garbage bag over the opening. Luckily, the motel had patroling security guards. We gathered in Hugh Howie's room for a session before every one headed off for bed and the early rising to be at Hara Arena early the next day.

We gathered and drove to the cracker barrel at seven for breadfast. And afterwards, Paul and Hugh Howie worked on Paul's van window and Hugh got the window up and they taped it up till Paul could get into the Chrysler dealership to get the in warranty repair done. That did make Paul feel lots better.

I got set up with my computer and put on the program with the WELCOME T/Sers message and then I got the disk drives in their case and since the drive cable had a QL plog I tested each drive by itself using a test ribbon cable I had with me. Both drives worked just fine. So when Charles Reese arrived I offered him a sum for the two drives, case and all and he said it was too much but he took the money. I think that we are both happy with the deal. SO NOW I AM ABLE TO HANDLE 720K 3.5 DISKS FOR EITHER THE LARKEN OR THE OLIGER DISK INTERFACES FOR THE T/S 2068.

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After my first foray to cruise the flea market area I returned to see Bob Swoger had just arrived and he was dripping with sweat. In fact all day Saturday was very warm and humid. And during the afternoon there was a storm with rain, thunder and lightning. Sunday, since the Arena had far fewer people in it, was far cooler. Either or both days contributed to my catching a sinus infection or sinus cold that laid me low for over a week.

I had arrived at the computerfest to get a few items: a working 3.5 720K disk drive, some 360K 5.25 disk drives, preferrable Tandon, some disk cases and maybe some odds and ends. I had the 3.5 disk drive before the doors opened and when they did I browsed the flea market area. The cheapest disks that I saw were 2 cents each for used 5.25 and a nickle each for 3.5. I got a quantity of the 3.5 and planned to return for the 5.25 but they were gone when I did return. But I did get some five cent ones. I found a Tandon TM 100-2A drive and got it for $4. That was exactly what I wanted. But I had no idea if it worked. Another place I found a Tandon TM 100-2A drive and the guy said he had a box of them out of IBM. The box was eight drives. Knowing that I might only get two or three working drives I bargained the price and got the box very reasonably. After I hustled the box to my car — closer than the T/SNUG table I returned and found at that vender yet another Tandon drive. I asked how much for the one that I had missed before. He took a look and gave it to me. It had a missing drive belt. I had spotted some disk cases but I did not press the issue and waited for later in the day. I did find another Tandon drive and while the guy wanted $5.00 I said that was too much he

came down and then I noticed that one of the posts that mount the top board was broken and pointed it out and he took far less.

Incidentally, the drive missing the drive belt worked just fine and so did the one with the broken post. I ended up with five working drives and four that need some tweaking. Plus a CDC drive that I can not test till I put a drive select socket on the board. One Tandon drive I could not test since it has an odd switch up next to the drive door latch that I will have to trouble shoot to see what it is designed to do. It might be a sort of circuit to prevent writing to a disk but I am not sure at this point. I had in the past a Tandon drive that had the two wires that went to the write protect switch cut. That drive would read a disk and go through the motions of writing but did nothing to the disk.

But when I did try to get a got discount on the disk cases (the disk cases were already well below normal price) I did get a buck off and he packed the three 5.25 cases (hold a hundred disks) plus the 3.5 disk case into the big box I paid and left. Later that night I found that I had four 5.25 disk cases so I don't know whether he knew it or not. At least I only paid for four cases and had five cases. In my computer room the disks seem to multiply like rabbits.

But there is still interest in the T/S computers and there are those that are still getting into the T/S computers. We had a couple start out. What happens next is anybody's guess. At least they had names and addresses of who to write or call for help.

Saturday night we all were

invited to Tim Swenson's house for a BBQ type supper. There was plenty to eat and we all had a chance to visit, discuss computers and programming.

Sunday morning we ate at Bob Evens and headed out to the Hara Arena. Except that this time most left with the motel room vacated and we left Hara after it was all over to go on our own. Hugh Howie had mentioned either going back to Canada Sunday morning or Monday morning but must have left early Sunday morning since we did not see him after Saturday. And as usual, Frank and Carol Davis planned to stay over and leave Monday.

Masako, my wife, was a little upset over what I brought back but got over it when I got all the drives tested and the none working ones tossed out. I actually tossed more drives than I brought back so that satisfied her. Amongst the non working drives that I already had was one that ran slow, about 200 rpm, and made grinding noises. I did change the spring loaded deal on the top of the spindle that clamped the disk to the spindle and it became a working drive. And that was a drive that I had since last year. 0/0

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ZX81 BASIC PROGRAMMING.

por Steven Vickers

(Traducido y adaptado por INVESTRONICA, S. A.)

Capitulo 1

Instalacion del ZX81

Al desembalar el ZX81, debe encontrar:

1. Este manual.

2. El computador. Este tiene

tres para jacks (marcados 9V DC IN, EAR y MIC) una toma de antena y una parte de su placa de circuito al descubierto, donde Ud. puede conectar equipo extra. No existen interruptores, para encenderlo solo tiene que enchufarlo a la fuente de alimentacion.

The book is a bound book not spiral bound like the U. S. ZX81 manual. And while the U. S. version runs to 154 pages; the Spanish version runs to 212 pages. Since I do not read Spanish I do not know whether the extra pages is due to a more wordy translation. I strongly suspect that this was printed for the use of the ZX81 computers that were sold to Argentina. If it were Brazil, the book would be in Portugese since that is the official language of Brazil.

I feel that if we had a closer tie to Argentina that we would have much more action with the ZX81 computers than we have now. The popularity of the ZX81 in Argentina is because it is the only affordable computer in a country of poor people. 0/0

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COMPATIBLE CASSETTE RECORDERS

I ran into this information issued by Timex and realize that while late it could help some that are still using the T/S 1000 (and I presume T/S 2068) computers and the cassette mass storage systems. These models may only be found in flea markets and garage sales but it is a lead.

COMPATIBLE CASSETTE RECORDERS.

| BRANDS | MODELS |
| --- | --- |
| GENERAL ELECTRIC | 35015 |
| GENERAL ELECTRIC | 35305 |

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|---|---|
| GENERAL ELECTRIC | 3-5152-B |
| GENERAL ELECTRIC | Silhouette 4-35152 |
| LLOYDS | V1808 |
| PANASONIC | 2107-D |
| PANASONIC | CRQ-30945 |
| PANASONIC | RQ-21084 |
| PANASONIC | RX-12500 |
| RADIO SHACK | CTR-37 |
| RADIO SHACK | CTR-57 |
| RADIO SHACK | CTR-61 |
| RADIO SHACK | 26-1206 |
| REALISTIC | 14-802 |
| REALISTIC | 14-812 |
| SANYO | M-1002 |
| SANYO | M-2555-2 |
| SANYO | SLIM-1 |
| SANYO | SLIM-5 |
| SONY | TCM-737 |
| WINDSOR | M-2260 |

I have also found a REALISTC MINISETTE-9 works very well. The MINISETTE-9 is an almost look-a-like to the T/S 2020. 0/0

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## TELEVISION COMPATIBILITY

Our Timex testing program has determined that the following late model COLOR televisions which use a new style solid state tuner are incompatible with your Timex Sinclair 1000. These televisions do not contain a fine tuning adjustment and, therefore, cannot be adjusted to mate with your Timex Sinclair 1000.

Most other television sets are compatible with your Timex Sinclair 1000, and we suggest you avoid using your computer with these few television models.

| BRANDS | MODELS |
|---|---|
| ZENITH | SN1973 |
| ZENITH | Y1908 |
| ZENITH | S41927 |
| ZENITH | S41926 |
| TEKNIKA | 3379 |
| TEKNIKA | 3349 |
| TEKNIKA | 3249 |
| TEKNIKA | 3439 |

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## 16K MEMOPAK

I did not know that there were two versions of the 16K ram paks by MEMOTECH until I attended the Dayton Computerfest. The interest was spurred by the request for information by Wayne Knaust in the last issue. Of the two versions it appears that Wayne has the early version (As did I until the Computerfest) in which the oval opening in the back does not disclose 4 DIP switches. The later version does have the four switches. I have sent the information to Wayne for his comments. It is possible to upgrade the early version to the later version but I do not know how involved that is. At the Dayton Computerfest I saw a 16K MEMOPAK and when I saw it had the dip switches and the manual I bought it.

The 32K version manual did mention that there was a way to upgrade the 16K switchless version to enable to it to be used in addition to other memory paks. But it did not give any details. Anybody got the details? 0/0.

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## NOTE TO MEMBERS

If you have a question or problem, an article or a complaint send a note or Post Card to:>)

ABED KAHALE
335 W NEWPORT RD
HOFFMAN ESTATE IL 60195-3106
Phone (708) 885-4337

OR

DONALD S. LAMBERT
1301 KIBLINGER PLACE
AUBURN IN 46706-3010
Phone (219) 925-1372

RE-INKING YOUR RIBBONS

I know that Abed Kahale did a little piece on re-inking ribbons but this is from a different source and does give quite a bit of background information.

The source is FORMAT (Vol 4 #3: November 1990) which is a U. K. based newsletter for the SPECTRUM and SAM users. (Don't ask me what SAM is?). Terms and prices are in the lingo of the U. K.

RE-INKING

RIBBON RESUSCITATION — ASSISTANCE FOR THE IMPECUNIOUS OR DOT-MATRIX DISASTER?

By John Wase

Do you re-ink your dot matrix printer ribbons? I do, and (I think) save myself quite a lot of money in the process. However, before you dash out to buy a bottle of Quink, let me mention that there are quite a lot of snags that you really ought to hear about.

Firstly, there is the ink. This should, of course run freely (but not too freely), and give a good dark impression. More subtle are the requirements which intimately concern the mechanism of the print head. As you probably know, the print head rapidly fires and refires a series of pins (most usually nine, eighteen or twenty four, depending on the quality, and cost of the printer), forcing them onto the ribbon, and therefore making inky dots on the paper behind. Anyone that has watched this will be struck by the speed at which it all happens (you can't see the pins being fired; it's all far too quick) and the more curious may well have burned their fingers on the top of the print head,

which can get very hot indeed. When you think about this a bit more, you can see that the lubricating, clogging and evaporative properties of the ink will be very important in respect of the ultimate life of the print head mechanism. And a dead print head usually means a new printer — they are rarely economical to repair. So the use of inappropiate inks (like the bottle of Quink) is bad news.

Let us look at things now in a little more detail. Don White, Professor of Chemical Engineering at the University of Arizona has done a bit of research into this subject, finding that the life of a print head can actually be significantly extended if ribbons are regularly coated with a lubricant — based ink of the proper type. As Don says, the elements involved in the printing process are the print head needles, the nylon fabric ribbon, the ink and the paper. The mechanics of the process, too, are important in respect of ribbon life: they depend, in turn, on the strike pressure of the print — head needles, the contact time of the ribbon and the paper, the ribbon properties (ink absorption and affinity), the ink properties (viscosity, darkness) and the paper properties (porosity and ink absorption). To make thinks even more complicated, the print head consists of electromagnetically fired metal needles individually cased in plastic cylinders: the strike pressure of the needles can vary from 5 to 200 pounds per square inch, and contact times with the paper (which are also a function of the printing speed and strike pressure) range from 10 to 200 microseconds.

Nylon fabric is the most widely used material for ribbons — the ribbon good ink absorption characteristics and resistance

to wear. To improve the ink absorption onto the nylon ribbon, the woven fabric is subjected to texturisation (the fibres are thermally treated, transforming the filaments into a highly twisted structures to improve porosity), and then a highly polarity polymer coating is added to the fabric surface to furthur improve affinity for the ink. High speed printers and twenty - four pin models use high - density ribbons with less porosity but much improved wear resistance - so don't try swapping ribbons between nine and tenty - four pin machines - you'll probably damage print - heads.

The ink, of course, is the key component. It must contain a permanent dye with a minimum of insoluable particles (non - abrasive and less than three microns maximum diameter), and it must neither react chemically with nor degrade in any other way the print head mechanism. That means that it must be compatible with stainless steel, phosphor bronze, beryllium, copper, nylon, acetal, polyethylene and polypropylene. It must also contain an imk - compatible additive which is stable and which will not form fummy precipitates on the print - head, but which will form a thin protective coating on the metal surface, lubricating the works well over the whole operating temperature range. The only practical additive which meets these requirements is a silicone of one sort or another, and ink is without such an additive is pretty useless. A number of printer manufacturers advise against re - inking ribbons. This advice is valid if traditional clay - based printing inks are used, for these will dry on the needle cylinder walls and clog the print head. However, this will not occur if the proper ink is used: indeed, Don has postive proof that head life can be extended with regular use of a proper ink which contains the appropiate lubricant.

Finally, to give you the complete low - down, let me mention that the key elements which affect ribbon and print - head life are the needle impact pressure (which can to some extent be varied by the printer user) and frequency of impact (which can not): the friction coefficient between needles and ribbon, and the print - head impact temperature, which are both profoundly affected by the presence and properties of the ink. This is because the friction coefficient between the matrix needles and the ribbon is very important. A large proportion of the strike energy is transformed into heat and the material properties of the nylon ribbon are themselves very sensitive to an increase in working temperature. With repeated use, the needle temperature can rise near the melting point nylon (480 degrees F) causing the ribbon to soften under the needles. The situation is made worse because nylon is a poor conductor of heat. However, as long as there is plenty of lubricating ink, adhesion between hot needles and nylon surfaces is prevented, so reducing wear: the presence of ink in between the filaments dissipates the impact energy. Of course, once the filaments begin to dry out, the impact temperatures rises sharply, causing rapid degradation of the fabric, a hole in the ribbon and possibly a ruined print head.

I tried out two very different re - inkers. The first is Caspell's "Ribbon Refresh". This comes as an aerosol canister at less than `10.00 including postage. The other device is the "Maxiprint Ribbon Re - Inker"

from AC Enterprises. This varies in price (there was a special offer when I got mine) but is likely to be at least '40.00. It consists of a box full of bits and pieces.

"Ribbon Refresh" first. To use this, you prise off the lid of the ribbon. This is usually a mooulding with a number of plastic pegs in it which fit into holes in the raised edge around the base. Great care is needed, as the pegs on the lid are easily broken off. The use of a ribbon where pegs are missing on the plastic box can result in the ribbon jamming and doing in the print head. Great care is also needed because, as you prise the lid off, a spring – loaded gadget which is difficult to replace often shoots out: beware. Once the lid is off, the ribbon is revealed as "concertinaed" fabric within the container. Put the open container, still with the ribbon inside, on a large sheet of newspaper, preferably out of doors. Put the tube (like the one supplied with WD40) into the aerosol press – spray and spray. Too little and the resulting print has light and dark patches. Too much and it's a runny mess. Don't forget to turn the knob after inking to bring the bits from outside and the ends into the middle, and to spray those, too. It's best to have several ribbons and do them well in advance, so that the ink soaks well in and the lightest hydrocarbon evaporates: I speak from bitter experience. Unless you take care, it can be a very messy job. Having said that, I've used "Ribbon Refresh" successfully since it was introduced, and have saved myself a fortune on replacing ribbons. True, the ink is not so black, nor does it last so long, but one can't have everything, can one.

The "Maxiprint Ribbon Re – Inker" is a horse of a different colour. The base of the box is slotted, and you have to assemble and screw a number of bits into this in order to clamp your particular shape of ribbon thightly. You then mark the start of the ribbon with a little dab of "Tippex", open the ink cartridge and turn a handle which is slotted onto the ribbon drive. My Epson FX80 types of ribbons are the least conveniently accomodated, and I find it difficult to get the clams tight enough. The loop around the cartridge was not as tight as I would have liked. In opening the cartridge, I got the stuff all over my hands. The ink did not run as freely as I would have liked and I couldn't control it as well as I had hoped, so that the first ribbon seemed over – inked, whilst others had the ink applied rather patchily. The winder kept coming off the ribbon: whilst it was stopped, the ink kept going, with a great big patch. It also took a very long time to wind the ribbon right through to the white "Tippex" mark again. Much of this was beginners' clumsiness, but I would not, for instance, recommend this to the Junior School teacher whilst the class was waiting!

So what were the results like. Marvellous, actually. They exceeded my wildest expectations. The ribbon was super – black. I have used one for ages in an Epson RX80 (you remember, the very old one) with Tasprint at double height to print leaflets and handbills. And still it carries on and on, as fresh as when I first reinked it. I get the impression that it lasts quite a bit longer than a new one.

So what's the verdict? At first I thought this was going to be a one – horse race: "Ribbon

Refresh" is so much cheaper and I found it so easy. However, the results, though satisfactory, are not nearly so impressive as those for the "Maxiprint" device. For the amateur, therefore, with a low rate of ribbon usage, I would recommend the Caspell can, for here one would need to buy only five or so new ribbons before the break - even pooint was reached. However, if you are a fairly large user of ribbons (more than twenty), like a small business office, or a teacher in a computer - aware school, and particularly if you need an especially good impression or it you use an awlful lot of graphics, then the "Maxiprint Ribbon Re - inker" could suit you better.

EDITORIAL COMMENTS:

I thought that the background of what to avoid is good. One way to test ink for whether it is oil based or water based is to apply a tiny amount to a jar of water and shake it up. The water based will dye the water uniformly while the oil based will form droplets of the ink and oil. Paul Holgren has told me of re - inking ribbons by using a piece of plastic and holding it folded over the ribbon and then using an electric screw driver to run the ribbon through the plastic with ink on it. I have tried that but it seems that I need another hand to do it. That way does not require opening the ribbon cartridge (box) which is not that big a deal with the ribbons for my Epson LX810. What is needed is a way to hold the entire assembly including holding down the switch on the electric screwdriver. I have heard of using mineral oil and also WD40. Once in the past I got a bottle of re - inking ink from RMG but looking at the ink I have hesitated to try it

since I could be weeks getting the ink off of stuff that was not to be inked. If interested in that the next time you order from RMG ask Rod Gowan about the ink. 0/0

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

SPECIAL NOTICE TO QL-ERS!

I have a great problem! I do not have a QL so I can not even try to write material for the QL. If I do not get any material submitted from a QLer then I will have to type in (if possible) old articles from other newsletters articles, etc. pertaining to the QL. I very likely will use articles that are of little interest to QLers. I would like to supply a good new article pertaining to the QL but I would never know since I do not have a QL.

Besides I am still learning to use the T/S 2068 and the T/S 1000 when and if I have one set up. I would like to have one of each kind of T/S computer (including the QL) with each disk interface set up and running at all times so that all I would have to do is lift the dust cover and turn it on. But space prevents that dream from materialising. I currently have a pair of T/S 2068s set up, one with the dual Larken/Oliger disk interface and the other a pure Larken disk interface but with the Spectrum EPROM installed on the dock board.

So you QLers send in something. What maybe oldstuff to you might be just what someone else wants to know. Send it in whatever form you can, longhand, typed, ran off on a printer, on disk for the T/S 2068 (3.5 720K, 5.25 either 360K or 720K) or if you have access to an IBM an ASCII file (word processor file) disk (in the mentioned sizes) can be converted to something I can print out. 0/0.

# Input/Output
by *Abed Kahale*

Y ou might have noticed, the last issue of Sir QLive was in a different format as well as a few errors that crept in due to the rush to get it out on time. Bob Swoger who did a commendable editing job, can no longer perform this task because of his other commitments (3 newsletters, a full time job, a wife and a daughter that talk back and a cat too). Don Lambert and myself are presently producing Sir QLive, then Bob runs the copies for me to mail. There is no one to edit and *spell check* Don's articles they are what comes out of his printer, Don doesn't care about the spelling anyway, *right Don?*. We will do our best to keep Sir QLive Alive. If you can contribute with an article, a query or a solution to a problem, please do so; the well is not dry as yet. As Les Cottrell puts it in his article in the following pages 'Did You Know?' *"that if you all share your tips, we could all benefit from it."*

## News Item
### 8/30/93

Dundee, Scotland — **Timex Corp.** said Sunday it had shut down its factory in Dundee, Scotland, following one of Britain's most bitter industrial conflicts of recent years. The factory made printed circuit boards for electronic cookers (*microwave ovens!*). The Company predicted the closure two months ago. On Sunday, a spokesman announced the factory would not reopen Monday morning. He added that Timex "deeply regrets ending its presence in Dundee after 47 years in the City." The plant, which had lost £10 million ($15 millions) over the past six years, was the scene of sometimes violent demonstrations by locked out workers angry over cost cutting efforts.

## Keep'em coming

Jeffrey Kuhlmann CMR/416 APO:- "Although Mr. Lambert does not have a QL, I was referred to him when I bought mine , and he was extremely helpful." "It is great to see newsletters still devoted to the Sinclairs." "I look forward to seeing my first issue!"

Daniel A. Chattin *Custom Audio Works* of Otis MA :- "I have been involved with the Sinclair computers for some time now. I built the original ZX81 kit and have the wafer drive, Memotech keyboard as well as a host of other Memotech add ons. My main computer is still an expanded QL (640K) with two 3" 180K and two 3.5" 720K drives as well as one 5.25" 360K drive.

Dane Stegman of Akron NY :- "Would you please send me a sample issue of your Newsletter." "I believe, I wrote to you a couple of years ago ... never got a sample issue."
*Sorry for the inconvenience, I did mail you an issue back then, according to my records. It must have been lost in the mail. He did receive the last issue and he is a new member.*

Louis A. Simon of Bridgeport CT:- "I am a few miles from where the TS2068 was made. We had a small users group but they broke up right after the SYNC Mag. and others folded up. I own a ZX81, TS2068 and a QL" "I enjoy acquiring a good program written in BASIC and I try to improve the program." "Thank you for the tips .. It has helped me in printing out the excellent 1stClass BytePower Magazine. I can print the LISTing but not the graphics." "I see by an article that I was not alone getting soaked by Mr. Boisvert they

cashed my check and inquiries went unanswered." "They advertised in the UPDATE Mag. selling their stock, I ordered two items."
*It is rumored that one of our dealers is taking over the BytePower software.*

## Re-Inking Dot-matrix Ribbons
### (page 9 in this issue)

My little article on re-inking that appeared in the Fall 92 issue of Sir QLive!, did not warn against using any *old* ink, but did specify to use printer ink (which is oil based). The inking can be very messy if not careful, but the ink can be removed using hand cleaner such as *go-jo* as used by car mechanics or a paint thinner for that matter. I have been re-inking and (mineral) oiling my ribbon for the last 15 months or so with excellent results. I could not see paying Radio Shack $9.95 for a ribbon cartridge about a quarter the size of modern cartridges and lasts much less. In fact I installed a piece of sponge that rests against the ribbon inside the cartridge and soaked it with ink. It wets the ribbon as the ribbon passes and rubs against it.

# 𝕿𝖗𝖊𝖆$𝖚𝖗𝖞 𝕹𝖔𝖙𝖊$
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# INEXPENSIVE Z-88 PARALLEL TO SERIAL CONVERTER

by Jay Shepard

I have mentioned before of my resistance to paying more for an item than I think it's worth.

I feel this way about the price of currently offered parallel to serial converters. Especially those offered for the Z-88. So, I was doing without until my friend, Bob Swoger, who fortunately dabbles in other computers, like COCOs (Tandy color comp.), told me of a converter for a COCO that could be had for $40. I asked the name of the firm handling this jewel;

Dayton Assoc.
9644 Quailwood Tr.
Spring Valley, Ohio 45370
(513) 885-5999

They call it the Blue Streak Ultima. The cost is $29.95 if your printer provides +5 volts DC. on pin 18 of the printer connector, if not then for $6.00 more, they'll include a wall plug power supply. It has a baud rate range from 300 to 19200, selectable by a switch!!! It comes with DIN plug, which will have to be converted to a DB-9 to be able to hook up to the Z-88's serial port, but it's only three wires, so even if you don't have the expertise to handle a soldering iron, you can find someone to do it using the following instructions for wire placement.

Separate the plastic case by carefully prying it apart at the seam with something like a small screwdriver. You'll have to do this because the people who put these together don't observe a color code and you'll have to determine wire location visibly. Once you're inside, holding the case with the printer connector end away from you, which is the serial port wire entrance end toward you, you'll see the three wires of this serial cable soldered to the PCB in a row.

If you'll number them from left to right away from the SCR, then they connect to the DB-9 connector as follows:
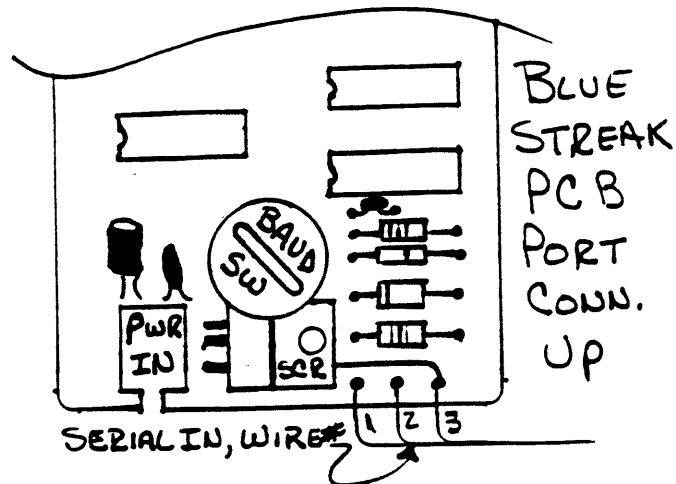


Wire #1 --- DB-9 pin #2
Wire #2 --- DB-9 pin #5
Wire #3 --- DB-9 pin #7

When this is done and you put the plastic case back together without catching the wires on top of the baud rate selector, you're in business.

The DB-9 connectors sold by Radio Shack (276-1403) have good hardware for capturing the wires. You will have to get the pin crimping tool.

Before you try to print out with ◇ PO, you should first make sure you selected the 9600 baud rate on the panel. You get there by keying [ ]s. Then, of course, you select that on your Blue Streak, also.

I found the way this unit is shaped gets in the way of my paper path so I got a cable extension to get it out of the way. Do not use an extension longer than 24 inches, it will delay the bytes and many drop out. I use a Radio Shack Cat. No. 26-2867. It's $10.95 in the States. Other than that it works as it should,
so enjoy.

# TIMEXERS CAN SURVIVE WITH HELP!

# The Tasman 'B' CPI
## Make it Work With the LarKen DS-400
### by Larry Kenny & Bob Swoger

George Chambers wrote to say: "We have been looking at the possibilities, i.e. reasonableness, of modifying the Tasman 'B' printer interface to make it compatible with the LarKen disk system. Presently there is some sort of a port conflict and the LarKen will not function when this particular model of printer interface is connected. The question is, does anyone know what port addresses the LarKen system uses?"

Here is the answer on how to use the Tasman 'B' CPI from Larry Kenny himself. The problem is not really a port conflict. Instead, the problem is that the Tasman 'B' CPI is not completely decoded. The Tasman 'B' has an input port of 191 but A7 is not being looked at by the CPI to come to this conclusion! If the mailman only looked at the first two numbers of an address and gave me all the mail that began with '61', my address being '613', I would wind up getting a lot of wrong mail. That is the Tasman problem.

Larry favored the AERCO CPI because it completely decodes the address bus, but he made provisions for Tasman 'B', A & J and others if they were modified. I like the Tasman 'B' because it can send all bytes to the printer from 0 to 255 and the AERCO can't. So I have modified my Tasman 'B' CPI for LarKen compatibility to run my Christmas Return Label program. It should be noted that this fix will not work for the Tasman 'A' or Tasman 'C'.

To make the Tasman 'B' CPI work with the LarKen disk System, acquire a 74LS04 quad NAND and some small gauge insulated hook-up wire. Open the Tasman 'B' CPI by first carefully peeling back the plastic label away from the screws. (If you pick up the ends carefully with an X-ACTO knife, the label will press back over the screws when you are done without even a wrinkle.) Remove the four screws that hold the case together and open the case. Examine the PC board to be certain that you have a 'B' version Tasman CPI. It is a 'B' if it is labeled 'VERSION B'.

Next, make the trace cut of A6 on the underside of the PC board close to board edge connector with the X-ACTO knife. Now follow the rest of the instructions Larry has given us in the diagram. When you are finished, carefully check all connections against Larry's diagram (next page). I didn't, and had to go back in to fix my problem. Finally, close the case and press the plastic label back into place.

Next, follow the instructions in your LKDOS manual to select the Tasman printer driver rather than the AERCO.

As for the port addresses of the LarKen system, I don't know them, but here are the CPI addresses from 'The Best of SUM', the newsletter-turned-magazine of the Gainsville Sinclair Users Group by Joe Williamson and Richard Cravy:-

### PORTS

| Type: | IN | OUT |
|---|---|---|
| AERCO | 127 | 127 |
| Tasman 'A' | 63 | 123 |
| Tasman 'B' | 191 | 123 |
| Tasman 'C' | 251 | 123 |

# Decoding the Tasman B+C for use with the Larken Disk IF

## Tasman B+C Component Layout
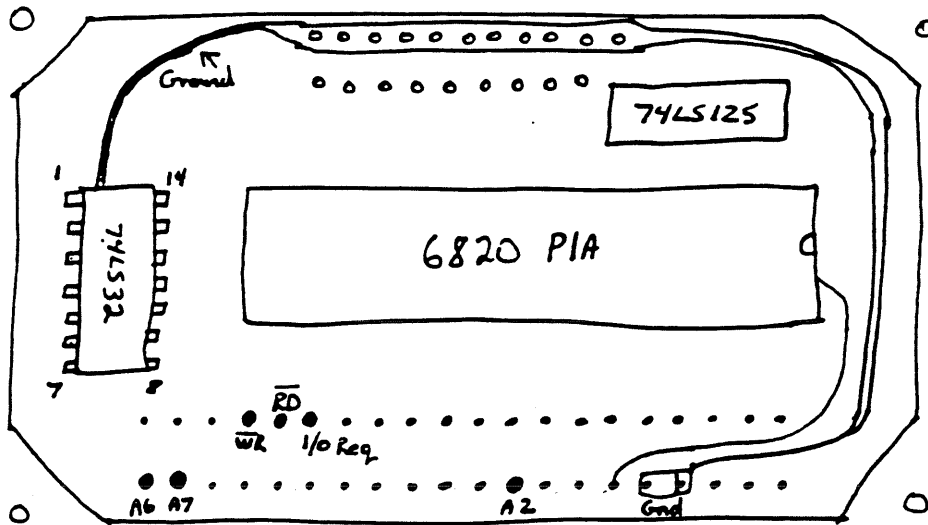


## Tasman 'B' modification : Parts needed - 74LS04
- fine wire



To 6820 Enables

Cut this trace that runs from A6 to Pin 2 on the 74LS32 on the underside of the PC Board.

Un-used Gate on 74LS32.

Add this c
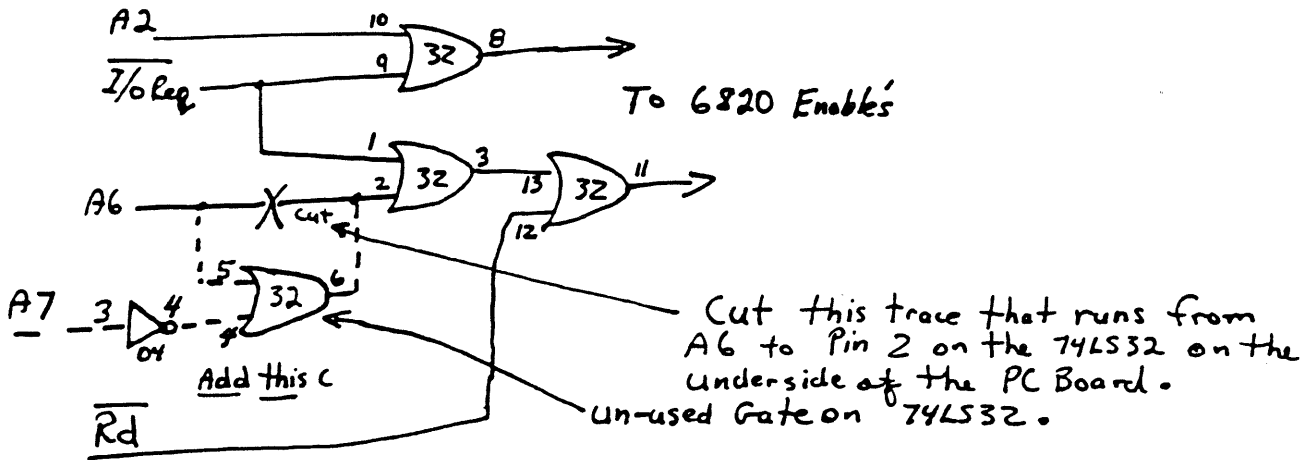
— Bend all of the pins on the 74LS04 up, (except pins 4, 7 and 14) and stack it on top of the LS32; Solder pins 4, 7 and 14 to pins 4, 7 and 14 of the LS32

— Connect A6 on connector to pin 5 on the 74LS32 with a wire.
— Connect A7 on the connector to pin 3 on the 74LS04 with wire.
— Connect pin 2 on 74LS32 to pin 6 on 74LS32.

15b

# 2068/LarKen Tips    By Les Cottrell

**DID YOU KNOW?**
That TASWORD files may be LOADed into MSCRIPT? Assuming that both use, the .CT extension and imbedded commands are not used the file will load easily. There will be some clean-up required since TASWORD doesn't use carriage returns. Some words will end up run together and there will be extra spaces in places but it is relatively easy to fix with MSCRIPT **'insert space'** key(1), **'delete'** key(0), and **'delete left'** key(9).

◆ That MSCRIPT files may be LOADed into TASWORD? The conversion isn't quite as easy as above, but it can be done. MSCRIPT uses carriage return (ENTER) and they will show up in TASWORD as the graphic found on the '8' key. That is your clue for paragraphs and blank lines, if you work from the bottom of the document and come up, the paragraphs can be separated using **'insert line'** (SS-AND). The next step is to delete all leading spaces for any line. Then the paragraph can be reformatted with **'reformat to end of paragraph'** (SS-STEP). The paragraph will probably have some split words, delete extra spaces there and reformat again if necessary. (TASWORD's 'what-you-see-is-what-you-get' format makes the load into MSCRIPT easier than vice-versa.)

◆ That LarKen version 3 users can save a block of disk space when saving Artist II by adding the line:
　　　1 BEEP 1, 1: PAUSE 60
Enter GOTO 1 and press the NMI button when the long BEEP ends, press the SHIFT and 1. Version 3 owners can then rename the file by:
　　　MOVE "NMI-S1.CM", "artist.B9"

or whatever name suits you, I use .Bn or .B9 to indicate NMI saves - the change from .C to .B extension avoids adding 'CODE'. I imagine there are other programs that can be done this way. It also gives you a clean bottom line when the load is completed.

◆ That if you load a program with machine code with a "0 REM" statement that you shouldn't use the OPEN#4, "dd" command? BytePower programs often use "0 REM" code, so don't blame the program if you have used a 'boot' program with OPEN# 4. The solution is as simple as removing 'OPEN# 4, "dd"' and replacing 'PRINT# 4' with 'RANDOMIZE USR 100'. Merely trying to CLOSE# 4 doesn't resolve this problem. This one is in the Larken instructions (but I forgot!). The lesson here is to reread the Instructions every so often.

◆ That version 3 owners can make any program pause with the NMI button after inputting the following one liner:
RANDOMIZE USR 100: POKE 16100, 201:
RANDOMIZE USR 100: POKE 8214, 16100
　　　The program pauses when you press the NMI button and may be resumed by pressing the "F" key.

◆ That version 3 users can re-boot from within any program with the NMI-F feature? This assumes you have an AUTOSTART program written in BASIC in your booting drive. After writing the pause routine above to stop a program with a countdown clock, I started considering other ways to use this clever feature. I had been adding the GFC re-boot routine to my BASIC programs, but many MC programs still required turning off the computer. By installing the following

routine in my RAMDISK boot program I can now re-boot from any program.

The heart of this program is lifted from the instructions in the Larken Disk Editor Instruction Manual. Once the program is LOADed I merely press the NMI button, then the "F" key and my RAMDISK is selected and booted. Obviously the program can be SAVEd independently and run from your menu or as you choose.

The first number in line 5 determines which drive is selected:

| Drive | 0 | 1 | 2 | 3 | 4 |
|-------|---|---|---|---|-----|
| Code | 2 | 4 | 8 | 16 | 128 |

This program is numbered so that it can be merged between lines 0 and 10.

```
1 RESTORE 4
2 FOR a = 16100 TO 16164
3 READ b: RANDOMIZE USR 100: POKE
a, b: NEXT a
4 DATA 123, 205, 98, 0, 62
5 DATA 128, 50, 3, 32, 0, 0, 0, 0, 0, 33, 27,
63, 17, 34, 32, 1, 10, 0, 237, 176, 62, 11, 50,
2, 32, 205, 198, 0, 42, 124, 32, 34, 51, 32,
42, 134, 32, 34, 49, 32, 205, 201, 0, 62, 100,
251, 201, 0, 0, 0
6 DATA 65, 85 84, 79, 83, 84, 65, 82, 84,
32
7 DATA RANDOMIZE USR 100: POKE
8214, 16100
8 BEEP .5, .5: PRINT "NMI-F REBOOT
ACTIVATED": PAUSE 100: CLS
```

For a stand-alone program you may add the following two lines
```
90 RANDOMIZE USR 100: NEW
9000 RANDOMIZE USR 100: SAVE
"booter.B1" LINE 1
```

That if you all share your tips, we could all benefit from it!

## Les Cottrell       Cocoa, FL

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**NOTE!**  ADDRESS CHANGE! RMG ENTERPRISES; 14784 QUAIL GROVE CIRCLE; OREGON CITY, OR 97045
TELE: (503) 655-7484 8AM-6PM PT TUE-SAT * FAX (503) 655-4116  24 HRS.
NOTE!!! THREE PAGES HAVE BEEN UPDATED FROM THE LAST ISSUE OF ZQA AND THREE (3) PAGES ADDED. LOTS OF BARGAINS THERE.

Updated From Last Issue

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CNSN-13                          LAST UPDATED JULY 17, 1993

As some of you know by now, we finally received version 5.0 upgrade of Bob Swoger's LOGICALL for LK DOS and it is supper! We have shipped the copies that some of you had on order. Let us know what you think of it. If anyone else would like a copy of the upgrade, just send your original disk with $5 to cover costs to us and we will send you a new copy. Please specify disk format (5.25" / 3.5" DSDD/SSDD). If you want to keep a copy of the old version, please do so as we will be putting the new version on your old disk.

*Our thanks again to all the loyal customers and TS fans who have been so patient during our recent move. We think we are pretty current with our mail and orders. If you have been waiting for more than 60 days, PLEASE! let us know so we can correct the problem.*

**From the Plotter**

*Retyped by H. K.*

# HERE IS A GREAT COLLECTION OF ITEMS FOR YOU!
************************************************************

-(1) Q-SAVE fast load amplifier (back panel removed)
     with both cassette software and EPROM firmware module,
     all docs, $38.
-(1) R.A.M. 2716/2732 EPROM burner and reader (mapped 8-16K).
     This is a really nice board with driver software
     (firmware) and excellent docs which I built but never
     tested. Has (2) Textool ZIF sockets for burn and (4)
     Aries ZIF sockets for read, (2) 8255A. Has other options.
     Requires inexpensive power supply (like Oliger's EPROM
     burner power supply). Connects via short ribbon cable. I
     have over $150 invested in this board-requires final
     adjustment, Docs. $40.
-4116-1 RAM chips. Most with slightly shortened leads. About
     90 available at $10.00 for ALL.
-(1) Byte Back Modem. Fully socketed. Built it myself and
     modified to new address in the 0-16K block. Software-all
     docs including kluge data included. Kluging necessitated
     removal of the case (included) but this modem could be
     converted back to stock without any trouble. Works fine.
     $30.
-(1) Timex 16K rampacks, used, in original boxes. $4 each-
     2/$7. (Add $3 shipping for both-$1.50 for one)
-(6) TS 1000 Rampacks all setup for the Hunter bank switch
     project in TS Horizons. The two small boards of each bank
     are joined together edge to edge with soldered-in 20 gauge
     wire jumpers to make a single long (very strong) board.
     Each long board has the edge connector modified to provide
     a standard Sinclair feedthru (the toughest part of the
     project). The entire 6-card stack is bolted rigidly
     together with small threaded rod and plastic spacers. I
     never got more than three or four of these boards to run
     together. That was before I became aware of the evils of
     excessive bus loading. This might be cured with buffering
     and really should have been addressed more carefully in
     the article- Docs, software included. $15.
-(3) TS 1000 motherboards. Complete  and  guaranteed  to  OK  $7
each.

                CNSN-4 (USE REFERENCE # VVU0491)
================================================================
CNSN-4    Last Updated: JULY 7, 1993

                ROD GOWAN, OWNER, RMG ENTERPRISES
                14784 SOUTH QUAIL GROVE CIRCLE
                OREGON CITY OR 97045
503/655-7484 8AM - 6PM PT TUES-SAT * FAX: 503/655-4116 24 HRS

RMG now has VOICEMAIL! If you call our FAX line at  503-655-4116
you will get the computer operator who will tell you that  "This
line is normally used for facisimile transmission. Press any key
to leave a voice message." If you so, you can leave up to  a  60
second message for us. We are renting mailboxes locally and hope
to add a third telephone line when  traffic  warrants  it.  This
voicemail line offers you the ability  to  leave  a  message  on
either of our lines or send us a FAX

# HERE ARE A COUPLE OF GREAT COLLECTOR PACKAGES!

## UNIT 1 INCLUDES:

1> TS1000 W/P/S, 16K RAM MANUAL, MI-NOT ADAPTER INSTALLED
1> MEMOPAK 64K

1> DIGITAL DUAL DISK DRIVE W/P/S, FAN, CASE, 2 DRIVES 40 TRACK
   SS/DD 5.25" W/AERCO CENTONICS INTERFACE W/ DOCS.
   BILL BOSS DOS ON DISK FOR THE TS1000
   THIS REQUIRES THE MI-NOT ADAPTOR.
   PRO-FILE ON DISK.
6> DISKS WITH MANY PROGRAMS.
1> TS2040 PRINTER IN ORIGINAL BOX
1> MEMOTEXT MODULE
1> MEMOTEXT ON DISK BY F. NACHBAUER
1> MEMOCALC MODULE
1> MEMOTECH HRG MODULE NEVER USED
1> MEMOTECH PLUG IN KEYBOARD

### CASSETTES
1> PROGRAMMER'S TOOL KIT SOFTSYNC
1> GRAPHICS TOOL KIT SOFTSYNC
1> KRAKIT
1> FROGGER
1> BUDGETER
1> CARPOOLER
1> ALGEBRA 1
1> STATES AND CAPITALS
1> BACKGAMMON
1> FLIGHT SIMULATOR
1> STRAGEGY FOOTBALL
1> PUZZLER
1> GRAPHIC GOLF - MINDWARE
1> GAMES/CROSSWORD - MINDWARE
1> EXEC-SOFT 7 SOFTWARE PROGRAMS FOR THE SMALL BUSINESS:
CUSTOMER CREDIT; EXECU-DIARY; ACCOUNTS PAYABLE; INVENTORY;
GENERAL LEDGER; ADDRESS AND PHONE FILE; ACCOUNTS RECEIVABLE; 3
BLANK CASSETTES/DATA -- ALL IN A PLASTIC BINDER.

1> MEMOTECH CENTRONICS INTERFACE
1> CABLE FOR ABOVE INTERFACE
1 ADVANCED BUDGET MANAGER SOFTSYNC

## ALL OF ABOVE FOR ONLY $600.00 (INCLUDES SHIPPING)

FOR ABOVE UNIT USE REFERENCE # HCU0793
SEE SHEET 12 FOR OTHER UNIT:
==================================================================
CNSN-12                    LAST UPDATED: JULY 17, 1993
==================================================================
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
NOTE BY DON LAMBERT: THERE ARE STILL TSERS USING THE AERCO
ZX81/TS1000 DISK SYSTEM. IT DOES REQUIRE A BOOT DISK AND THE
BOOT HAS TO BE ON EACH DISK. THE BB.DOS IS WHAT MAKES IT A REAL
SYSTEM AND THAT IS INCLUDED WITH THE UNIT. THE SS DRIVES CAN BE
REPLACED BY DOUBLE SIDED DRIVES WHICH GIVES ADDED CAPACITY TO
THE DISK. IT IS FAST, LOAD A PROGRAM WHILE A CASSETTE IS GETTING
TO THE PROGRAM ON TAPE. I KNOW OF SEVERAL THAT USE THE AERCO
ZX81 DISK INTERFACE.

WE JUST KEEP ADDING MORE PAGES! MORE ITEMS FOR YOU!!!

```
1>  MIRACLE QL PRINTER INTERFACE  ------------------- $ 30.00
1>  QL TECHNICAL GUIDE  ------------------------------ $ 10.00
2>  AERCO FD-68 DISK INTERFACE W/256K RAM  --------- $105.00EA
1>  COLECO POWER SUPPLY FOR USE WITH FD-68  -------- $  5.00
1>  TECHNIKA 13" COMPOSITE COLOR MONITOR  ---------- $ 45.00
1>  RITEMAN 9 PIN DOT MATRIX PRINTER  -------------- $125.00
        INCLUDES: TRACTOR/ROLL FEED W/8 RIBBONS
          GRAPHICS COMPATIBLE
```

FOR ABOVE ITEMS PLEASE USE REFERENCE # RDSU0393

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HERE ARE SOME BOOKS THAT MAY INTEREST YOU!

```
1>  TIMEX SINCLAIR 1000/ZX81 USERS MANUAL  --------- $  2.00
1>  EXPLORING TS1500/1000 GRAPHICS  ---------------- $  3.00
1>  BASIC BASICS FOR THE TS1500/1000  -------------- $  3.00
1>  BYTING DEEPER INTO YOUR TS1000  ---------------- $  4.00
1>  LEARNING TIMEX/SINCLAIR BASIC LEIN  ------------ $  5.00
1>  TS1000 BASIC PROGRAMS IN MINUTES SYBEX  -------- $  3.00
1>  THE ZX81 COMPANION  ---------------------------- $  2.00
1>  THE TS1000 BASIC HANDBOOK SYBEX  --------------- $  3.00
1>  THE ELEMENTARY TS1000 DATAMOST  ---------------- $  3.00
1>  CRUNCHERS 21 SIMPLE GAMES FOR TS1000 2K  ------- $  2.00
1>  PROGRAMS YOUR TS1000/BASIC EISENBACHER  -------- $  5.00
1>  TS BASIC PRIMER WITH GRAPHICS SAMS  ------------ $  3.00
1>  THE TIMEX PERSONAL COMPUTER MADE SIMPLE  ------- $  2.00
1>  MASTERING YOUR TS1000 PERSONAL COMPUTER  ------- $  2.00
1>  Z80 ASSEMBLY LANGUAGE SUBROUTINES LEVENTHAL  --- $ 12.00
              TOTAL SELLING PRICE  -------$ 69.00
    ORDER ALL - PACKAGE PRINCE ONLY $50.00 + $10. SHIPPING
```

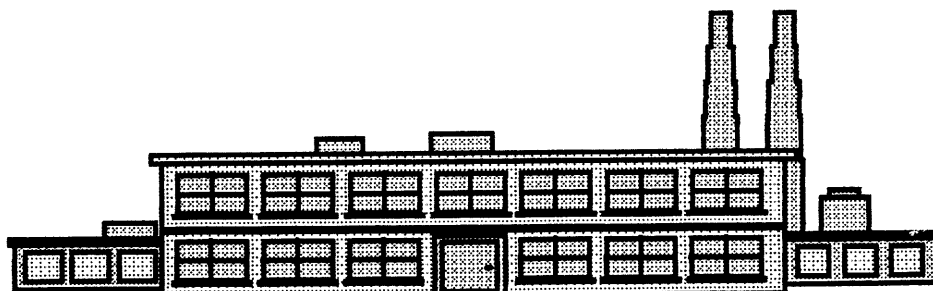========================================================================

COLLECTOR'S ITEMS

```
LIPINSKI'S SOFTWARE BUYER'S GUIDE TO TS
PRODUCTS AND SEVICES IN LOOSE LEAF BINDER  --------- $ 15.00+3SH
SYNCWARE NEWS VOLUMES 2 - 3 - 4 - 5  -------------- $ 25.00+5SH
```

FOR ABOVE ITEMS USE REFERENCE # HCU0793

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# Public Domain Library - TS-2068

## Disk No. 1(LarKen)    Tape No. 1

| Program Name | Program by / Revised by | Source | Date | Code |
|---|---|---|---|---|
| DIGITCLOCK | | Ft Worth TX TSUG Library | 85-12 | CZ |
| MONITOR | | Ft Worth TX TSUG Library | 85-12 | DA |
| KEYBOARD | | Ft Worth TX TSUG Library | 85-12 | DF |
| SCREEN | | Ft Worth TX TSUG Library | 85-12 | DF |
| BEEP | | Ft Worth TX TSUG Library | 85-12 | CJ |
| PSG | | .Ft Worth TX TSUG Library | 85-12 | DF |
| BOUNCE | | Ft Worth TX TSUG Library | 85-12 | EB |
| DEMOLITION | | Ft Worth TX TSUG Library | 85-12 | BF |
| HEADER | | Ft Worth TX TSUG Library | 85-12 | DI |
| UTILITY | | Ft Worth TX TSUG Library | 85-12 | AH |
| CALENDAR | | Ft Worth TX TSUG Library | 85-12 | AJ |
| HYDROLOGY 1 | DOYLE HARRIS | Ft Worth TX TSUG Library | 85-12 | CA |
| HYDROLOGY 2 | DOYLE HARRIS | Ft Worth TX TSUG Library | 85-12 | CA |
| CLIP ART 1A | NETTA HARRIS | Ft Worth TX TSUG Library | 85-12 | EE |
| FORTH | BOB BURTON | Ft Worth TX TSUG Library | 85-12 | DD |
| FORTH | BOB BURTON | Ft Worth TX TSUG Library | 85-12 | DD |
| RAM | BOB BURTON | Ft Worth TX TSUG Library | 85-12 | DD |
| N-POLYGONS | FRANK BOULDIN | Ft Worth TX TSUG Library | 85-12 | EB |
| BOLD | | Ft Worth TX TSUG Library | 85-12 | DF |
| TANK | | Ft Worth TX TSUG Library | 85-12 | BB |
| XMASCARD | CHUCK DAWSON | Ft Worth TX TSUG Library | 85-12 | EE |
| SETYPE | | Ft Worth TX TSUG Library | 85-12 | DF |
| PATS | | Ft Worth TX TSUG Library | 85-12 | EE |
| RAND | | Ft Worth TX TSUG Library | 85-12 | EE |
| 21 | | Ft Worth TX TSUG Library | 85-12 | BE |
| CHECKBOOK | | Ft Worth TX TSUG Library | 86-09 | AF |
| RISK | | Ft Worth TX TSUG Library | 86-09 | AH |
| MOV AVGS | | Ft Worth TX TSUG Library | 86-09 | AH |
| EXP SMOOTH | | Ft Worth TX TSUG Library | 86-09 | AH |
| LIN OPT S1 | | Ft Worth TX TSUG Library | 86-09 | AH |
| NET PRESENT VALUE | | Ft Worth TX TSUG Library | 86-09 | AH |
| TYPEWRITER | JACK DOHANY | Ft Worth TX TSUG Library | 86-09 | AA |
| ANIMAL | JOHN BELL | Ft Worth TX TSUG Library | 86-07 | EE |
| TYPEWRITER OS-64 | JACK DOHANY / DAVID BAULCH | Ft Worth TX TSUG Library | 86-09 | AA |
| CASSETTE DIRECTORY | MICHAEL CARVER | Ft Worth TX TSUG Library | 86-09 | DI |
| CATALOG | | Ft Worth TX TSUG Library | 86-09 | DI |
| SQUARE WAVE | | Ft Worth TX TSUG Library | 85-12 | ED |
| MC DEMO | | Ft Worth TX TSUG Library | 85-12 | DG |
| AUTO-ANSWER | | Modem OVER TACOMA BBS | 87-01 | DH |
| AUTO-DIAL | | Modem Over TACOMA BBS | 87-01 | DH |
| REPEAT-DIAL | | Modem Over TACOMA BBS | 87-01 | DH |
| MEMORY TEST | TIM WARD | TIM WARD | 87-09 | DF |
| WHAT-IZ-IT | FRANK BOULDIN | Ft Worth TX TSUG N/L | 86-11 | EE |
| RENUMBER | CHARLES STELDING | Ft Worth TX TSUG N/L | | DF |
| 64 COLUMN | STAGNELL / STELDING | Ft Worth TX TSUG N/L | | DF |
| FADE OUT | M. WATERS | Ft Worth TX TSUG N/L | | DZ |
| CHARACTER SET 1 | BEN STAGNELL | Ft Worth TX TSUG N/L | | DF |
| CHARACTER SET 2 | BEN STAGNELL | Ft Worth TX TSUG N/L | | DF |
| CHARACTER SET 3 | BEN STAGNELL | Ft Worth TX TSUG N/L | | DF |
| FACTORISE | W.E. THOMPSON | Ft Worth TX TSUG Library | 86-09 | CH |
| MEMSCAN | RUSSELL ENGLISH | Ft Worth TX TSUG Library | 86-09 | EE |
| SPIRAL | JOE JENKINS | Ft Worth TX TSUG N/L | | EB |
| GRAPHIC ? | J. COPPS | Ft Worth TX TSUG N/L | | EB |
| TAPE TO TAPE | LARRY KENNY | Ft Worth TX TSUG N/L | | DI |
| TITLE-1 | DUNCAN / DUNLOP | Ft Worth TX TSUG N/L | | EF |
| TITLE-2 | DUNCAN / DUNLOP | Ft Worth TX TSUG N/L | | EF |
| TITLE-3 | DUNCAN / DUNLOP | Ft Worth TX TSUG N/L | | EF |
| TITLE-4 | DUNCAN/ DUNLOP | Ft Worth TX TSUG N/L | | EF |
| CHARACTERS | J. VISSER | Ft Worth TX TSUG N/L | | EB |
| TINY TURTLE-1 | TIM HARTNELL | Ft Worth TX TSUG N/L | | EB |
| TINY TURTLE-2 | TIM HARTNELL | Ft Worth TX TSUG N/L | | EB |
| BIG STUFF | LUMBY / JACK KEENE | Ft Worth TX TSUG N/L | | EF |

# Disk No. 2    Tape No. 2(Includes : TEST, DIVISION & LEDGER)

| | | | | |
|---|---|---|---|---|
| SAUCERS | N.J. KEMP | TONY WILLING | 86-07 | BM |
| SAUSTIK | N.J. KEMP / TONY WILLING | TONY WILLING | 86-07 | BM |
| FRENCH TUTOR 1 | JOAN KEALY | JOAN KEALY | | CF |
| FRENCH TUTOR 2 | JOAN KEALY | JOAN KEALY | | CF |
| FRENCH TUTOR 3 | JOAN KEALY | JOAN KEALY | | CF |
| SPANISH TUTOR | M. CURLEY / JOAN KEALY | JOAN KEALY | | CF |
| GROCERY LIST | JOAN KEALY | JOAN KEALY | | AM |
| WORD SQUARE | JOAN KEALY | JOAN KEALY | | BB |
| SQUAW TIME | JOAN KEALY | JOAN KEALY | | AM |
| SQUAW TIME SCREEN | JOAN KEALY | JOAN KEALY | | EZ |
| STOCK VALUE | JOAN KEALY | JOAN KEALY | | AE |
| HUMORISQ | JOAN KEALY | JOAN KEALY | | CK |
| HR | JOAN KEALY | JOAN KEALY | | CJ |
| QUIZ MASTER | JOAN KEALY | JOAN KEALY | | CK |
| LOCOLGEN | JOAN KEALY | JOAN KEALY | | CL |
| TIPS A-M | JOAN KEALY | JOAN KEALY | | DZ |
| TIPBIT SCREEN | JOAN KEALY | JOAN KEALY | | EZ |
| TIPS M-Z | JOAN KEALY | JOAN KEALY | | DZ |
| ENORO | JOAN KEALY | JOAN KEALY | | AH |
| ENORO SCREEN | JOAN KEALY | JOAN KEALY | | EZ |
| MYSTERY MANOR | JOAN KEALY | JOAN KEALY | | BA |
| MYSTERY MANOR SCREEN 1 | JOAN KEALY | JOAN KEALY | | EZ |
| MYSTERY MANOR SCREEN 2 | JOAN KEALY | JOAN KEALY | | EZ |
| SIMP-L-SKETCH | RICHARD G. BARRY | RICHARD G. BARRY | | EB |
| TEST EDITOR 2000 | CHRIS NYSTROM | RICHARD G. BARRY | | AA |
| TEST EDITOR 2000 DOC FILE | CHRIS NYSTROM | RICHARD G. BARRY | | AA |

# Disk No. 3    Tape No. 3 (TRIGGRAPH to CASS LABELS are on TAPE No. 4)

| | | | | |
|---|---|---|---|---|
| TEST | | RICK SHOPE | 88-01 | CK |
| DIVISION | | RICK SHOPE | 88-01 | CK |
| LEDGER | | RICK SHOPE | 88-01 | AH |
| MORTGAGE | | RICK SHOPE | 88-01 | AH |
| NIGHTFALL | | RICK SHOPE | 88-01 | BM |
| BATTLE | | RICK SHOPE | 88-01 | BL |
| 3-D | | RICK SHOPE | 88-01 | EB |
| BIO-GRAPH | | RICK SHOPE | 88-01 | BN |
| CHORDIZE | JOAN KEALY | JOAN KE/ALY | | CJ |
| BEETHOVEN | JOAN KEALY | JOAN KEALY | | CJ |
| ESPANOLA | JOAN KEALY | JOAN KEALY | | CJ |
| PALOMA | JOAN KEALY | JOAN KEALY | | EZ |
| EVERGREEN | JOAN KEALY | JOAN KEALY | | CJ |
| ENDLESS LOVE | JOAN KEALY | JOAN KEALY | | CJ |
| THE ROSE | JOAN KEALY | JOAN KEALY | | CJ |
| STARBLAST | | RICK SHOPE | 88-01 | BM |
| W5GAA CLOCK | FRANK BOULDIN | RICK SHOPE | 88-01 | CZ |
| RESISTOR | | CATS Public Domain Library | 89-06 | CD |
| RESCODE | | CATS Public Domain Library | 89-06 | CD |
| SOUND EFFECTS | | CATS Public Domain Library | 89-06 | CJ |
| CALORIBURN | JOE SHITH JR. | COMPUTER TRADER MAGAZINE | | AM |
| UNIFILE | | CATS Public Domain Library | 89-06 | AB |
| SENDVARS | DAVID HOSHOR | CATS Public Domain Library | 89-06 | DF |
| VARSLIST | | CATS Public Domain Library | 89-06 | DF |
| VARSCODE | | CATS Public Domain Library | 89-06 | DF |
| ATTR TABLE | R. VALENTINE /G. CHAMBERS | CATS Public Domain Library | 89-06 | ED |
| MULTIFILE | ALGIS GEDRIS | TORONTO TTSUC | 89-06 | AB |
| METRIC | GEORGE CHAMBERS | TORONTO TTSUC | 89-06 | AZ |
| HEXLOADER | | CATS Public Domain Library | 89-06 | DA |
| C | | CATS Public Domain Library | 89-06 | DA |
| MC-MOVE | JOHN LEARY | CATS Public Domain Library | 89-06 | DF |
| ASSEMBLER | | CATS Public Domain Library | 89-06 | DB |
| DISASSEMBLER | ROBERT GILDER | CATS Public Domain Library | 89-06 | DB |
| COPYCAT | | CATS Public Domain Library | 89-06 | DI |
| MULTITAPE | R.W.M. | CATS Public Domain Library | 89-06 | DI |
| TRACER | | CATS Public Domain Library | 89-06 | DF |
| BINARY NO. | | CATS Public Domain Library | 89-06 | DZ |
| PHONE DIRECTORY | /IZZY GOLDSMITH | LIST U.G. Library | 89-06 | AB |
| FILE I | | CATS Public Domain Library | 89-06 | AB |
| MC | | CATS Public Domain Library | 89-06 | AB |

| | | CATS Public Domain Library | 89-06 | AB |
|---|---|---|---|---|
| MERGE | | CATS Public Domain Library | 89-06 | ED |
| GRID9X | | CATS Public Domain Library | 89-06 | DF |
| LPRINT | | CATS Public Domain Library | 89-06 | DI |
| CASSETTE LABEL | R. CLOUGH | ZX COMPUTING | | EB |
| CIRCUIT | | CATS Public Domain Library | 89-06 | DF |
| TRACER | C.H. STONE | CATS Public Domain Library | 89-06 | DF |
| CODE | C.H. STONE | CATS Public Domain Library | 89-06 | EB |
| TRIGGARAPH | ANDY CENTEK | CATS Public Domain Library | 89-06 | EE |
| SPRITE | | CATS Public Domain Library | 89-06 | EE |
| PYRAMID | /JAMES N. JONES | CATS Public Domain Library | 89-06 | EE |
| SPIRAL | | CATS Public Domain Library | 89-06 | EB |
| DROP | /JAMES N. JONES | CATS Public Domain Library | 89-07 | EA |
| OPUS | D. RICHARDSON/ TONY WILLING | TS HORIZONS | 89-07 | EE |
| RGB TEST | TONY WILLING | QZX Newsletter | 89-07 | DI |
| CASS LABELS | J. DUPUY/ TONY WILLING | ZX APPEAL Newsletter | | |

# Disk No. 4     Tape No. 4 (Ends at WORK SIMULATION)

| | | | | |
|---|---|---|---|---|
| BELLTOWER | T. SHERWOOD | SINCUS Library | 90-05 | BF |
| PIGPICK | TOM PROFFITT | SINCUS Library | 90-05 | CZ |
| BUSTER | | SINCUS Library | 90-05 | BH |
| MANIA | | SINCUS Library | 90-05 | EZ |
| SHEEPDOG | | SINCUS Library | 90-05 | BM |
| 3DTIC | | SINCUS library | 90-05 | BL |
| ALIENS | BOB REDMAN | SINCUS Library | 90-05 | BM |
| KITCHEN | | SINCUS Library | 90-05 | BM |
| MESSIAH | DAVE FRANSON | SINCUS Library | 90-05 | CJ |
| MATH | JOHN COLONNA | SINCUS Library | 90-05 | CH |
| GOLF | | SINCUS Library | 90-05 | BG |
| HANGCAT | | SINCUS Library | 90-05 | CF |
| CONCENTRATION | | SINCUS Library | 90-05 | BB |
| BIORHYTHMS | J. CLARK | SINCLAIR USER ANNUAL 1983 | 90-05 | BN |
| MUSIC | /BILL BERNARD | CINCY T/S USERS GROUP | 90-05 | CJ |
| SPACMAN | S. J. STEARN | SINCLAIR USER ANNUAL 1983 | 90-05 | BH |
| EARTH | A. TUCKER | SINCLAIR USER ANNUAL 1983 | 90-05 | BM |
| TICTAC | R.W. BROWN / J. COLONNA | SINCUS Library | 90-05 | BL |
| SATURN | GEORGE F. CHAMBERS | YOUR COMPUTER 5/83 | 90-05 | BM |
| POKER | | SINCUS Library | 90-05 | BE |
| SWARM | | SINCUS Library | 90-05 | BM |
| KINGKONG | | SINCUS Library | 90-05 | BF |
| CHARAT | | SINCUS Library | 90-05 | BF |
| TENNIS | PHILLIP SPROSTON | SINCUS Library | 90-05 | BG |
| DRIVER | | GAMES FOR TS-2000 | 90-05 | BM |
| MISSION | | SINCUS Library | 90-05 | BH |
| CRICKET | | SINCUS Library | 90-05 | BG |
| NEW YORK | GEORGE F. CHAMBERS | POPULAR COMPUTING 6/83 | 90-05 | BM |
| PIPELINE | | SINCUS Library | 90-05 | BL |
| ASTEROID | | SINCUS Library | 90-05 | BM |
| SUB | | SINCUS Library | 90-05 | BM |
| MONEYPAIL | | SINCUS Library | 90-05 | BM |
| BRICKY | | SINCUS Library | 90-05 | BM |
| CHOMPR | | SINCUS Library | 90-05 | BF |
| LAS VEGAS | | SINCUS Library | 90-05 | BE |
| WORK SIMULATION | | SINCUS Library | 90-05 | BL |
| | *End of Tape No. 4* | | | |
| DEMOL12 | | SINCUS Library | 90-05 | BF |
| 3-D MAZE | | SINCUS Library | 90-05 | BH |
| ELIZA | G.F. CHAMBERS | SINCUS Library | 90-05 | CZ |
| ELIZA CODE | /G.F. CHAMBERS | SINCUS Library | 90-05 | C2 |
| HEADER DISPLAY | | SINCUS Library | 90-05 | DF |
| SORTWORD | | SINCUS Library | 90-05 | DG |
| SORTCODE | | SINCUS Library | 90-05 | DG |
| RENUMBER | RODGER VALENTINE | G. CHAMBERS/TTSUC | 90-05 | DF |
| STATS | | SINCUS Library | 90-05 | CB |

# Disk No. 5

| | | | | |
|---|---|---|---|---|
| 3D WORDS | /W.E. WALKER | TSUG N/L 3/3 | 90-05 | EZ |
| BANK9 | CARL TERRY | SINCUS Library | 91-04 | AH |
| CHECKBAL | JOHN COLONNA | SINCUS Library | 91-04 | AF |

| | | | | |
|---|---|---|---|---|
| TYPIST | LAWRENCE | SINCUS Library | 91-04 | CL |
| LOAN | JOHN COLONNA | SINCUS Library | 86-07 | AH |
| SPRITE | | SINCUS Library | 91-04 | ZZ |
| DOSDEX | | SINCUS Library | 91-04 | DF |
| 64 COLS | WES BRZOZOWSKI | SINCUS Library | 91-04 | DE |
| 64 CODE | WES BRZOZOWSKI | SINCUS Library | 91-04 | DE |
| WES PPP | WES BRZOZOWSKI | SINCUS Library | 91-04 | DF |
| 64 TYPE | | SINCUS Library | 91-04 | DE |
| SOUND | MILL RESEARCH | SINCUS Library | 91-04 | CJ |
| TOOLKIT | | SINCUS Library | 91-04 | DF |
| TOOL CODE | | SINCUS Library | 91-04 | DF |
| PAIRS | | SINCUS Library | 91-04 | BB |
| SQUIRM | | SINCUS Library | 91-04 | BM |
| HALLOW | KENNETH FRACCHIA | SUG Library | 87-01 | BH |
| COIN | | SINCUS Library | 91-09 | BM |
| ANTHEM | OLEG JEFIMENKO | SINCUS Library | 91-04 | CJ |
| CAPITAL | | SINCUS Library | 91-04 | CE |
| USA | | SINCUS Library | 91-04 | CE |
| SANTA | ZX COMPUTING | SINCUS Library | 86-12 | BM |
| RIFLE | MICHAEL HOUSLEY | SINCUS Library | 91-04 | BM |
| BATTLESHIP | | SINCUS Library | 91-04 | BL |
| SINE | | SINCUS Library | 91-04 | ED |
| SOLO | | SINCUS Library | 91-04 | BZ |
| WORTH | | SINCUS Library | 91-04 | AH |
| TYCHK | | SINCUS Library | 91-04 | DB |
| DANUBE | WM.J. TILLEY | SINCUS Library | 91-04 | CJ |
| RCPLANE | CARL GREEN | SINCUS Library | 91-04 | AL |
| LOTTO | PAUL HILL | SINCUS Library | 91-04 | BZ |
| TV/2068 | RICK JOHNSON | CINCY T/S User Group | 91-04 | EE |
| SYNC | JACK DOHANY | SINCUS Library | 91-04 | DZ |
| IRISH | OLEG JEFIMENKO | SINCUS Library | 91-04 | CJ |
| IRISHSCR | OLEG JEFIMENKO | SINCUS Library | 91-04 | CJ |
| COLORS | | SINCUS Library | 91-04 | EZ |
| LETTER | JOHN COLONNA | SINCUS Library | 91-04 | EZ |
| LETTERSCR | JOHN COLONNA | SINCUS Library | 91-04 | EZ |
| TIMEX LOGO | | THE HACKER | 88-07 | EZ |
| CALENDAR | | SINCUS Library | 91-04 | AJ |
| CALCODE | | SINCUS Library | 91-04 | AJ |
| ENGINE | | ZX APPEAL | 83-06 | CZ |
| AMORT | AL LAITY | SINCUS Library | 91-04 | AH |
| PIE CHART | | ZX APPEAL | 86-10 | EZ |
| TAPE ANALYZER | BILL PIERSON | SINCUS Library | 91-04 | DI |

## Disk No. 6

| | |
|---|---|
| PIXEL PRINT PLUS! | STAN LEMKE |
| STING GRAPHICS | STEVE SPAULDING |
| QRL LKDOS | JACK DOHANY |
| RLE GRAPHICS | BILL FERREBEE |

# P D Software Program Codes

## Code — Business & Home

| | |
|---|---|
| AA | Word Processors |
| AB | Data Base/List Management |
| AC | Spreadsheet |
| AD | Communications |
| AE | Stocks, Bonds and Investment |
| AF | Checking and Saving Accounts |
| AG | Income Tax and Payroll |
| AH | Finance - Loans, Currency Conversion |
| AI | Business - Inventory, Manufacturing Control |
| AJ | Appointments, Schedules, Calendars |
| AK | Personal Productivity |
| AL | Hobbies - Photo, Stamps, User Groups |
| AM | Cooking - Recipes |
| AZ | Misc. Business and Home Software |

## Games

| | |
|---|---|
| BA | Adventure |
| BB | Brain Teasers |
| BC | Chess and Backgammon |
| BD | Dungeons and Dragons |
| BE | Casino |

| | | | | |
|---|---|---|---|---|
| BF | Arcade | | | |

BF   Arcade
BG   Sports
BH   Mazes
BI   Space
BJ   Trivia
BK   War
BL   Strategy, Tic-Tac-Toe
BM   Moving Graphics
BN   Tarot, Biorhythms
BZ   Misc.

## Programming

DA   Machine Code Loaders
DB   Assemblers, Disassemblers
DC   Compilers
DD   Programming Languages
DE   Operating Systems
DF   Utilities - Tool Kits - Merge, Renumber
DG   Subroutines - Input, Screen, Sort
DH   Drivers - Printers, Plotters, Disk Drives
DI   Tape Interface
DZ   Misc.

## Education

CA   Science - Biology, Chemistry, etc.
CB   Business - Data processing, Inventory cntrl.
CC   Christian
CD   Electricity, Electronics
CE   Geography, History
CF   Languages, Spelling, Grammar
CG   Educational Games
CH   Arithmetics, Mathematics
CI   Reading
CJ   Sound, Music
CK   Quizzes, Tests
CL   Teaching Aids - Grade Books, Exam. Sorts
CZ   Misc.

## Graphics

EA   High Resolution
EB   Draw Programs
EC   Graphic Tablets
ED   Charts, Graphs
EE   Graphic Designs, Patterns
EF   Signs, Banners
EG   Screen Saves
EH   RLE Files
EZ   Misc.

ZZ   Software not fitting the above description.

**Disk No. 6**

The Pixel Print Plus! and Sting Graphics Support package are LKDOS, LOAD/SAVE are directly to disk. All files are contained as Pixel Print on the respective disk.
The Disk DOCTOR was written by George Chambers of The Toronto TTSUC.
The RLE Graphics Collection contains 72 RLEs courtesy of Bill Ferrebee and QRLKDOS, Jack Dohany's QRL RLE File Handler converted to LKDOS.

### The above library was donated to T/SNUG by

*Tony Willing*      &      *Tim Ward*

DSDD or SSDD LKDOS 5.25" Disks are available for $2.50 each postpaid from:-
A. KAHALE
335 W NEWPORT RD
HOFFMAN ESTATES IL 60195-3106

C-60 Tapes are available from:-
D G SMITH
R 415 STONE ST
JOHNSTOWN PA 15906